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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/575,920 | 02/02/2007 | Timothy Rex Bunce | 71,049-007 | 5476 |
| 27305 7590 07/22/2009 HOWARD & HOWARD ATTORNEYS PLLC 450 West Fourth Street Royal Oak, MI 48067 | | | | |
| EXAMINER | | | | |
| FACTEAU, LINDSAY | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1796 | | | | |
| MAIL DATE | | DELIVERY MODE | | |
| 07/22/2009 | | PAPER | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,920

Applicant(s)

BUNCE ET AL.

Examiner

LINDSAY FACTEAU

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2007.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-25 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 02 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-850a)
Paper No(s)/Mail Date 02/02/2007 and 09/30/2008
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The sentence "Cyclic organopolysiloxanes having the general formula (CR"2SiO212), wherein R" is hereinbefore described, n is from 3 to 100 but is preferably from 3 to 22, most preferably n is from 3 to 6 " is not a complete sentence [0056].

Appropriate correction is required.

Claim Objections

2. Claims 2-15, 17-19 and 2-2 are objected to because of the following informalities: All of the above claims being with "A method..." wherein they should begin --The method...—. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:
4. The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 16 uses the language "obtainable" which renders the claim indefinite because it broadens the claim to

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the possibility of other ways of obtaining an organic resin beyond that of the disclosure of the specification.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1 – 13, 15 – 18, and 20 - 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Goodwin et al, WO 03/086029 (Equivalent of US Patent No. 7,438,882).

8. With regard to claims 1 and 15 Goodwin discloses a method of forming a gel and/or powder of a metallic oxide, metalloid oxide and/or a mixed oxide or resin thereof from one or more respective organometallic liquid precursor(s) and/or organometalloid liquid precursor(s) by oxidatively treating said liquid in a non-thermal equilibrium plasma discharge and/or an ionized gas stream resulting therefrom and collecting the resulting product (abstract), which reads on the claimed steps 1-i, 1-iii, and 1-iv. Goodwin further discloses that the temperature for use of the non-thermal equilibrium plasma techniques typically operate at

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temperatures below 200 °C, preferably between room temperature (20 °C) and 70 °C (column 3, lines 54 – 59). Furthermore, the process of forming the excited gas is substantially the same in both Goodwin and instant specification (column 6, lines 30 – 35) and thus would result in the gas species being substantially free of electrical charges as admitted in the instant specification [0010] which reads on the claimed step 1-ii. Attention is brought to Figure 1 of Goodwin which is substantially similar to that of instant Figure 3 in which the liquid precursor meets with the treated gas downstream and is allowed to react, which reads on the claimed step 1-iii.

9. With regard to claim 2, Goodwin further discloses that any suitable non-thermal equilibrium plasma equipment may be used to undertake the method of their invention and make mention of dielectric barrier discharge (column 6, lines 30 – 35), which is an appropriate means to conduct instant method according to instant specification and reads on the claimed electrical discharge apparatus.

10. With regard to claim 3, Goodwin further discloses that the liquid precursor is either retained in a container or is introduced into the reactor (column 7, lines 14 - 17), wherein the reactor reads on the container.

11. With regard to claims 4 – 5 and 20 - 24, attention is brought to Figure 1 of Goodwin which is substantially similar to that of instant Figure 3 in which the liquid precursor meets with the treated gas downstream and is allowed to react, which reads on the claimed use of a fluidised or circulating bed.

12. Regarding claims 6 and 9-10, Goodwin further discloses that the liquid precursor can be a number of oxides of organometallics or organometalloids,

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including metals of columns 3a and 4a of the periodic table (including titanium, zirconium, iron, aluminum, indium and lead) (column 3, lines 60 - 66) and boron, silicon, germanium, arsenic, antimony and tellurium (column 4, lines 6 - 10) which reads on the liquid precursor being a liquid and being either made of those specific metals or metalloids.

13. Regarding claim 7, Goodwin further discloses that the liquid precursor can be introduced into the apparatus by way of a liquid spray through and atomiser or nebuliser, wherein the precursor may be atomized using any conventional means (column 6, lines 5 – 8) which reads on the liquid precursor being in the form of an atomized liquid.

14. Regarding claim 8, Goodwin further discloses that the liquid precursor may be introduced into the plasma discharge or resulting stream in the absence of a carrier gas by direct injection (column 5, lines 63 – 67) which reads on the liquid precursor being directly injected.

15. Regarding claim 11 and 12, Goodwin further discloses that the liquid precursors have, as suitable precursors, the general formula W-A-W wherein A is



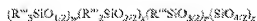
Wherein R'' is independently an alkyl group having from 1-10 carbons, an alkenyl group such as a vinyl, propenyl, and/or hexenyl, hydrogen, an aryl group, a halide, an alkoxy, an epoxy, an acryloxy, an alkylacryloxy, or a fluorinated alkyl group, and s is 0 – 2 and W can be $\text{---Si(R}'')_2\text{X}$ wherein R'' is as defined above and X may be the same as a R'' or a hydrolysable group such as an alkoxy, epoxy,

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a methacryloxy group or a halide (column 5 lines 5- 42) which reads on the claimed organometalloid compound.

16. Regarding claim 13, Goodwin further discloses that the liquid precursor viscosity is preferably between 0.65 and 1000 mPa-s (column 5, lines 26 - 28) which reads on the claimed viscosity range.

17. Regarding claims 16 and 18, Goodwin further discloses a silicone resin of the formula



Wherein each R^{w'} is independently an alkyl, alkenyl, aryl, H, OH, and w+x+p+z=1 and w and x are less than 0.9 and p+z is greater than 0.1 which is formed by the process of their invention (column 4, lines 14 – 21), which reads on an organometalloid oxide powder as claimed.

18. Regarding claim 17, Goodwin discloses that the average particle size of particles formed is from 1 nm to 2000 μm (column 5, lines 52 – 54) which reads on the claimed particle size.

19. Regarding claim 25, Goodwin further discloses the use of the powdered particles in optoelectronics, photonics, solid-state electronics, flexible electronics, optical devices, flat panel displays and solar cells (column 9, lines 14 - 18) which reads on the claimed use of the powder.

Allowable Subject Matter

20. The following is a statement of reasons for the indication of allowable subject matter:

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21. Claims 14 and 19 require that the liquid precursor should be an organic compound. Goodwin does not disclose that liquid precursors can be used in their apparatus.

22. Yadav, US Patent number 6,569,397 (hereinafter Yadav) discloses a method for producing fine powders of oxides, carbides, nitrides, borides, chalcogenides, metals and alloys (abstract) by a substantially similar method (see Figure 2). Example 5 of Yadav further shows the formation of a silicon powder via the above method useful biomedical applications, electronic and electromagnetic devices, films and coatings, and also for sensors (EXAMPLE 5). Furthermore, Yadav discloses that the precursor can be organic compounds such as methane, ethylene, acetylene, ethane, benzene, and others. However, Yadav does not disclose the appropriate temperature range. Yadav discloses a temperature range which includes heats above 3000 °C which would decompose most of the biological powders produced by instant claims. These claims would be considered allowable pending an updated search if rewritten in independent format.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LINDSAY FACTEAU whose telephone number is (571)270-7735. The examiner can normally be reached on Monday - Thursday, 9 am - 5 pm est.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LF

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796